

A Broader Perspective of Musculoskeletal Conditions in Children

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Musculoskeletal conditions are responsible for a significant disability burden, and recent data show that this is also the case for children and adolescents.² Importantly, though, musculoskeletal conditions rarely occur in isolation; they often coexist with other health issues. There is potentially great benefit of an approach to research and practice that considers musculoskeletal pain in children and adolescents from a broader perspective. Perhaps to make the biggest impact on the burden of musculoskeletal conditions, we need to break away from the traditional silos of research and clinical practice, which focus narrowly on musculoskeletal pain as the key outcome.

For over a decade, health risks such as overweight/obesity, low levels of physical activity, poor nutrition, and alcohol and drug use have been the topic of public health campaigns.^{11,12} Related preventative initiatives have aimed to reduce the impact of these lifestyle-related health risks on current generations of youth and to avoid poor health into the future. Focus on these risk factors is understand-

able, given that they collectively result in approximately 25% of the global disease burden, including more than 580 million years lived with disability and over 24 million deaths.³ Notably, these behaviors are typically established in childhood and track through the lifespan, so targeting these health risks in children is an important pillar of chronic disease prevention.¹²

There is a steadily increasing volume of research, including in this special issue of the *Journal of Orthopaedic & Sports Physical Therapy*, to suggest that the same children whose health is compromised by challenges such as overweight/obesity,⁸ low levels of physical activity,⁵ alcohol and drug use, and mental health issues⁷ are also those most likely to be af-

ected by musculoskeletal pain. There are numerous systematic reviews and studies showing cross-sectional and longitudinal associations between pain and risk factors for chronic diseases.^{4,10} Despite these data being available for some time, neither the research nor the clinical world has integrated the prevention or management of pain with that of these broader health issues.

Exploration of more integrative models of care for musculoskeletal conditions in pediatric populations lags well behind that for other chronic diseases and health risk factors. Similarly, musculoskeletal pain pales in comparison to these other health concerns on the public health agenda. It is possible that our silos of professional and research practice have contributed to both of these areas of disconnect. Exploring the reasons for this and considering potential solutions are arguably overdue.

The Advocacy Silo

It is evident that funding for musculoskeletal research and practice does not

match its disability burden. In response to this, advocacy for greater funding often draws on data from research, such as the Global Burden of Disease study, and contrasts the high musculoskeletal burden to that of other disease states. However, the impression that musculoskeletal conditions do not pose a significant mortality threat is hard to overcome. Put simply, the fact that no one dies from the most prevalent musculoskeletal conditions makes it harder for the musculoskeletal pain field to “compete” for funding with other conditions that are linked with early mortality. Perhaps the issue is that this type of advocacy considers musculoskeletal pain in isolation, which contrasts with the way other chronic diseases and risk factors are considered. It is possible that by exploring and highlighting the links between musculoskeletal conditions and higher-profile conditions and risk factors for poor health, disability, and death, we can leverage the social and political engagement of broader health issues to bring much-needed attention and focus.

Clinical Practice Silos

For the most part, the treatment of musculoskeletal pain focuses singularly on the individual health condition rather than the complex interaction between states of health and disease. While movement toward more encompassing paradigms such as the biopsychosocial model has occurred,¹ little attention has been given to treatments that target a broader set of determinants and consequences of musculoskeletal pain, including obesity, substance use, and inactivity. This may require a shift away from a hard focus on pain as the key outcome of interest. In clinical practice, patients are characterized and assessed by their pain location, duration, intensity, and fluctuations. However, it is questionable whether this narrow focus contributes to improving a patient’s overall health. Despite experiencing moderate improvements in pain states, do patients with complex comorbidities receive treatment that has the highest potential to influence their health?

As practitioners treating musculoskeletal-related pain, we should be considering the broader health concerns of patients. Despite a modest shift toward multidisciplinary practice, we tend to remain within our professional silos and focus on particular aspects of health (eg, pain). This focus could significantly limit the potential benefits that our clinical services provide.

Research Silos

The focus of musculoskeletal research is similarly narrow. Research participants are primarily classified and assessed by the presence, emergence, or change in pain states, without assessment of broader health concerns. While research has considered the link between musculoskeletal pain and other health risks or chronic diseases (eg, cardiovascular disease and diabetes), these other health states are typically considered as risk factors or prognostic factors for musculoskeletal pain. Very little consideration has been given to why or how these risk factors may lead to the development of pain or improve it.

One alternative line of inquiry involves investigation of the extent to which pain may be a risk or prognostic factor for health risks (eg, weight gain, inactivity, substance use) and chronic disease. This leads to consideration of whether musculoskeletal pain should be addressed in public health programs, such as those that target smoking, obesity, or physical activity in young individuals. A broader research agenda would arguably better reflect the complex needs of these individuals. This perspective also has potential implications for public health research. Questions include the role of healthy lifestyle interventions in prevention of musculoskeletal pain-related disability in children and adolescents, and whether addressing musculoskeletal pain may affect the effectiveness of healthy lifestyle management and prevention programs in this age group.

It is also possible that we are constrained by the tendency to focus on

causation. Whether musculoskeletal pain may lead to chronic disease, or vice versa, is an important research question and may ultimately inform prevention of these diseases. However, answering this question may not be necessary to designing and testing treatments that target the broader and complex health concerns of patients with musculoskeletal pain and chronic disease risks. Considering musculoskeletal pain, chronic diseases, and risk factors as a cluster of health issues may inform pragmatic research directions that guide the application of health care and lead to more integrated practice.

Considering the role of musculoskeletal pain in the broader picture of child and adolescent health offers new perspectives for researchers and clinicians in the public health and clinical fields. Conceptualizing young individuals with musculoskeletal pain as a population at risk for poor health generally encourages more comprehensive clinical practice and research paradigms. Delivery of more integrative services, and development of better links between existing clinical and public health programs, has the potential to reduce the impact of musculoskeletal pain and chronic disease in children and adolescents. The importance of these factors goes beyond the immediate impact on health and quality of life of children and adolescents; it could also shape their future health. Poor lifestyle habits developed in adolescence are known to track into adulthood,⁹ and these factors are major contributors to the onset of lifelong chronic disease and mortality risk.⁶ Addressing such health risk factors in adolescence is recognized as socially and economically desirable.¹¹ If musculoskeletal conditions are an important factor in the development of adverse health risk factors, then addressing pain in adolescents may have far-reaching individual and societal health implications. It is a field in which musculoskeletal practitioners and researchers of musculoskeletal conditions can make important contributions. ●

REFERENCES

1. Gatchel RJ, Peng YB, Peters ML, Fuchs PN, Turk DC. The biopsychosocial approach to chronic pain: scientific advances and future directions. *Psychol Bull.* 2007;133:581-624. <https://doi.org/10.1037/0033-2909.133.4.581>
2. Institute for Health Metrics and Evaluation. GBD Compare Viz Hub. Available at: <https://vizhub.healthdata.org/gbd-compare/>. Accessed November 1, 2016.
3. Institute for Health Metrics and Evaluation. Global Burden of Disease Study 2010 (GBD 2010) Results by Risk Factor 1990-2010. Seattle, WA: Institute for Health Metrics and Evaluation; 2012.
4. Kamper SJ, Henschke N, Hestbaek L, Dunn KM, Williams CM. Musculoskeletal pain in children and adolescents. *Braz J Phys Ther.* 2016;20:275-284. <https://doi.org/10.1590/bjpt-rbf.2014.0149>
5. Leininger B, Schulz C, Gao Z, et al. Accelerometer-determined physical activity and clinical low back pain measures in adolescents with chronic or subacute recurrent low back pain. *J Orthop Sports Phys Ther.* 2017;47:769-774. <https://doi.org/10.2519/jospt.2017.7345>
6. Lim SS, Vos T, Flaxman AD, et al. A comparative risk assessment of burden of disease and injury attributable to 67 risk factors and risk factor clusters in 21 regions, 1990-2010: a systematic analysis for the Global Burden of Disease Study 2010. *Lancet.* 2012;380:2224-2260. [https://doi.org/10.1016/S0140-6736\(12\)61766-8](https://doi.org/10.1016/S0140-6736(12)61766-8)
7. McLaren N, Kamper SJ, Hodder R, et al. Increased substance use and poorer mental health in adolescents with problematic musculoskeletal pain. *J Orthop Sports Phys Ther.* 2017;47:705-711. <https://doi.org/10.2519/jospt.2017.7441>
8. O'Sullivan P, Smith A, Beales D, Straker L. Understanding adolescent low back pain from a multidimensional perspective: implications for management. *J Orthop Sports Phys Ther.* 2017;47:741-751. <https://doi.org/10.2519/jospt.2017.7376>
9. Swinburn BA, Sacks G, Hall KD, et al. The global obesity pandemic: shaped by global drivers and local environments. *Lancet.* 2011;378:804-814. [https://doi.org/10.1016/S0140-6736\(11\)60813-1](https://doi.org/10.1016/S0140-6736(11)60813-1)
10. Toomey CM, Whittaker JL, Nettel-Aguirre A, et al. Higher fat mass is associated with a history of knee injury in youth sport. *J Orthop Sports Phys Ther.* 2017;47:80-87. <https://doi.org/10.2519/jospt.2017.7101>
11. World Health Organization. Global Status Report on Noncommunicable Diseases 2010. Geneva, Switzerland: World Health Organization; 2011.
12. World Health Organization. Population-Based Approaches to Childhood Obesity Prevention. Geneva, Switzerland: World Health Organization; 2012.

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